

Force XXI Battle Command, Brigade & Below (FBCB2)

The Force XXI Battle Command, Brigade and Below (FBCB2) is a digital battle command system that provides information to support a brigade task force. Its primary purpose is to accurately and quickly disseminate and display friendly and enemy unit locations, and to communicate orders, overlays, and graphical tactical control measures throughout the force. The system consists of a small-rugged computer and a display, and uses the Tactical Internet for line-of-sight communications (either Single Channel Ground and Airborne Radio System (SINCGARS) or Enhanced Position Location and Reporting System (EPLRS)). It can also be configured using L-band satellite, thus it is known as FBCB2 Blue Force Tracking (BFT). The system also has a connection to a Global Positioning System receiver for self-location and feeds into the Global Command and Control System.

At the brigade and battalion tactical operation centers, the Tactical Internet interfaces with the Army Tactical Command and Control System (ATCCS) – an Ethernet-based local area network of computers representing the functional areas of intelligence, maneuver, air defense, combat service support, and fire support. This interface permits the information collected and disseminated via ATCCS systems to be rapidly passed through the Tactical Internet to FBCB2 computers. Likewise, the position reports of individual and unit locations are passed upwards through the FBCB2 and Tactical Internet into the ATCCS systems for dissemination throughout the force via the Global Command and Control System. Network initialization and management functions are performed by the Tactical Information Management System at the brigade tactical operation center.

Army systems with computer processors and displays mounted in them will receive the FBCB2 software often referred to as Embedded Battle Command software. Examples of Army systems that employ the Embedded Battle Command software include the M2A3 Bradley Infantry Fighting Vehicles and the M2A2 System Enhancement Package main battle tanks. In addition to the tactical vehicles, the ATCCS component computers have Embedded Battle Command software installed to facilitate the interface between FBCB2 and ATCCS.

TEST & EVALUATION ACTIVITY

The Army conducted a developmental test (Field Test 5) at Fort Huachuca, Arizona, in September 2002 in preparation for the then-scheduled IOT&E in FY03. This Field Test 5 was followed by Limit User Test 2A in December 2002.

A cold weather test was conducted at the Cold Regions Test Center, Alaska, in February 2003. This small-scale cold region test was conducted at the request of DOT&E, and involved about ten FBCB2 platforms mounted in High-Mobility Multipurpose Wheeled Vehicle (HMMWVs) that were operated by soldiers in a field environment at Fort Greely, Alaska.

In early 2003, the Army notified DOT&E that they were postponing further testing of the FBCB2 program due to the imminent operational deployment of the test unit the 4th Infantry Division (4th ID) to Operation Iraqi Freedom. Prior to the deployment of the 4th ID, the Army made substantial changes to the architecture of the FBCB2 system, changed the name to BFT, and installed the systems in the 3rd Infantry Division, the 101st Air Assault Division, the 1st Marine Expeditionary Force, and the 1st United



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Kingdom Armored Division – also as a part of Operation Iraqi Freedom. The BFT system relied upon L-band satellite radio rather than the terrestrial EPLRS network of FBCB2, and was distributed in a much smaller density per division than the terrestrial FBCB2 in the 4th ID. In contrast to FBCB2, the purpose of BFT was to create a situational awareness picture for higher headquarters for use in tracking friendly units on a macro scale.

TEST & EVALUATION ASSESSMENT

The FBCB2 system continued to improve in performance through the test events conducted in 2003. During Field Test 5 at Fort Huachuca, Arizona, the command and control message traffic achieved a message completion rate of over 90 percent, including message traffic sent to the Army Battle Command System computers. Although there was message success, the system was plagued by the inability to reliably pass operational graphics between the FBCB2 and Maneuver Control System. The point estimate of the mean time between failures for FBCB2 computers at Field Test 5 was about 500 hours. While short of the requirement of 700 hours, this represented the best performance yet achieved by FBCB2.

The cold weather testing at Fort Greely likewise achieved improved performance. Darkened screens which previously presented an issue in earlier test events were no longer a problem, and the Tactical Internet and FBCB2 performance were not seriously affected by the cold weather. The temperature range experienced at the test site during the test was +12 degrees to -30 degrees.

The performance of FBCB2 and BFT during Operation Iraqi Freedom was also generally favorable. DOT&E had access to after-action reports from all of the units that employed either FBCB2 or BFT (with the exception of the 4th ID), and user response to the system has been positive. The BFT system in particular has been well received for the job it was intended, which is providing an outline of friendly unit locations to senior commanders. In addition, the BFT system communications through the L-band satellite has, in many cases, been reported as the only means of reliable communications available due to the extended ranges between units during the operation. The BFT system is to track movements, to navigate (particularly in periods of poor visibility), and to orient and plan for fires. Users have reported it as very helpful in coordinating unit linkups, and in avoiding fratricide incidents at unit boundaries.

In recognition of the capability that FBCB2 BFT provides, the Army will conduct a developmental test/operational test of Block I in February 2004. This, combined with other events and assessments, will constitute an IOT&E to support a full-rate production decision review for Block I. Following a full or conditional material release decision, the FBCB2 program will need to provide a Test and Evaluation Master Plan to reflect the new operational concept, acquisition strategy, and test requirements for the follow-on testing required to demonstrate completion of FBCB2 Block II requirements. However, there are FBCB2 Block II requirements that have not been met, especially the interfaces between the FBCB2 and the other Army Battle Command System computers. The Army will continue to develop the FBCB2 Block II program with another IOT&E required for that block to be held in the future, probably in FY05.